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Certificate No.: TC- 5548

Format No: CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2018-06-12-05** **Date: 15-06-18**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.
Agency	:	Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.
Customer's Reference	:	BBMP/EE/BTP/WO/110/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	12-06-18
Sample ID No	:	2018-06-12-05 /01
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 (Part 1,2 3,4,5, 6,11):1988 IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4 IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5 IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6 IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5 IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6
Date of test	:	13-06-18
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	Fineness by dry sieving (%)	1.22	_
2	Finess by Air permeablity method (m^2/kg,Min)	298.6	225m^2/kg, Min
3	Density (gm/cc)	3.14	_
4	Standard Consistency (%)	28.5%	Not specified
5	Initial Setting time	155 minutes	Not less than 30 minutes
6	Final Setting time	275 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	2mm	Not more than 10 mm

Note:

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Authorized Signatory
Quality Manager

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Format No: CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Date: 11-07-18

Lab ID	:	**CP-2018-06-12-05**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.
Agency	:	Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.
Customer's Reference	:	BBMP/EE/BTP/WO/110/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	12-06-18
Sample ID No	:	2018-06-12-05 /01
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 6, Determination of Compressive Strength, Clause 6
Date of test	:	13-06-18
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Compressive Strength

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	3 Days	29.5N/mm^2	Not less than 27 N/mm^2
2	7 Days	39.0N/mm^2	Not less than 37 N/mm^2
3	28 Days	56.5N/mm^2	Not less than 53 N/mm^2

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Authorized Signatory
Quality Manager

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2018-06-12-05** **Date: 15-06-18**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura)
Agency	:	Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.
Customer's Reference	:	BBMP/EE/BTP/WO/110/2017-18
Source of Sample	:	Sample supplied by Agency
Sample condition	:	Satisfactory
Date of Receipt	:	12-06-18
Sample ID No	:	2018-06-12-05 /02(a)
Sample Type	:	40mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	12-06-18

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	489	489	3.3	96.7	90-100
3	20 mm	4778	5267	35.1	64.9	30-70
4	10 mm	7116	12383	82.6	17.4	10-35
5	4.75 mm	2114	14497	96.6	3.4	0-5
6	Pan	503	15000	100.0	0	---

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TEST REPORT ON COARSE AGGREGATES

Format No: CP/TF/01

Lab ID : **CP-2018-06-12-05**

Sample ID No : 2018-06-12-05 /02(a)

Date: 15-06-18

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	9.6	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	11.2	
3	Specific Gravity	2.65	–
4	Bulk Density(Loose) (Kg/l)	1.39	–
5	Bulk Density(Compacted) (Kg/l)	1.45	–
6	Water Absorption(%)	0.32	–

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Authorized Signatory
Quality Manager

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2018-06-12-05** **Date: 14-06-18**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.
Agency	:	Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.
Customer Reference	:	BBMP/EE/BTP/WO/110/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	12-06-18
Sample ID No	:	2018-06-12-05 /02(b)
Sample Type/ Size	:	20mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	12-06-18

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	425	425	8.5	91.5	90-100
3	10 mm	2344	2769	55.4	44.6	25-55
4	4.75 mm	1895	4664	93.3	6.7	0-10
5	Pan	336	5000	100	0	-

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2018-06-12-05** **Date: 14-06-18**

Sample ID No : 2018-06-12-05 /02(b)

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	11.8	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	10.2	
3	Specific Gravity	2.63	–
4	Bulk Density(Loose) (Kg/l)	1.41	–
5	Bulk Density(Compacted) (Kg/l)	1.48	–
6	Water Absorption(%)	0.25	–
7	Aggregate crushing Value(%)	23.8	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	22.1	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

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Authorized Signature
Quality Manager

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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2018-06-12-05**

Date: 14-06-18

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.

Agency : Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.

Customer's Reference : BBMP/EE/BTP/WO/110/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 12-06-18

Sample ID No : 2018-06-12-05 /03

Sample Type : Fine Aggregate

Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption

Date of test : 12-06-18

Total weight taken : 1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	21	21	2.1	97.9	90-100	90-100	90-100	95-100
3	2.36 mm	172	193	19.3	80.7	60-95	75-100	85-100	95-100
4	1.18 mm	173	366	36.6	63.4	30-70	55-90	75-100	90-100
5	600 micron	203	569	56.9	43.1	15-34	35-59	60-79	80-100
6	300 micron	216	785	78.5	21.5	5-20	8-30	12-40	15-50
7	150 micron	129	914	91.4	8.6	0-10	0-10	0-10	0-15
8	Pan	86	1000	100.0	0.0	---	---	---	---

Result :The tested Sample Conforms to Grading Zone II

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TEST REPORT OF FINE AGGREGATE

: CP-2018-06-12-05

Date: 14-06-18

e ID No : 2018-06-12-05 /03

CAL PROPERTIES

Tests	Result	Requirements as per IS 383:2016
Water Absorption(%)	1.29	–
Specific Gravity	2.56	–
Material finer than 75 micron(%)	6.3	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

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Format No: CP/TF/01

TEST REPORT ON BITUMEN

Lab ID	:	**CP-2018-06-28-09** **Date: 30-06-18**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.
Agency	:	Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.
Customer's Reference	:	BBMP/EE/BTP/WO/110/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	28-06-18
Sample ID No	:	2018-06-28-09/01
Sample Type	:	Bitumen
Reference to BIS codes	:	IS: 1201-1220(1978) (Reaffirmed-2004)
Date of test	:	29-06-18

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	64	60 to 70
2	Softening Point, °C	51.2	Min. 40°C
3	Ductility, cm	98	Min. 75cm
4	Flash point, °C	245	Min. 220°C
	Fire point, °C	272	

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Certificate No.: TC- 5548

Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2018-06-20-16

Date: 25/06/2018

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.

Agency : Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.

Customer's Reference : BBMP/EE/BTP/WO/110/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 20-06-18

Sample ID No : 2018-06-20-16 /01

Customer ID : Drain Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 25/06/2018

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Concrete	M20	18/06/2018	25/06/2018	150.42 X 150.54 X 150.45	22644	8.312	389.5	17.2	17.2
2	Drain Concrete	M20	18/06/2018	25/06/2018	150.42 X 150.54 X 150.45	22644	8.331	398.5	17.6	
3	Drain Concrete	M20	18/06/2018	25/06/2018	150.32 X 150.54 X 150.35	22629	8.345	380.2	16.8	

Note:

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Quality Manager

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Certificate No.: TC- 5048

Format No: CP/TR/01 548

TEST REPORT OF CEMENT CONCRETE CUBES

ID	:	CP-2018-06-20-16 Date: 16/07/2018
tomer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
dress	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
ject Name	:	Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.
ncy	:	Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.
tomer's Reference	:	BBMP/EE/BTP/WO/110/2017-18
rce of Sample	:	Sample supplied by Agency
ple Condition	:	Satisfactory
e of Receipt	:	20-06-18
ple ID No	:	2018-06-20-16 /02
tomer ID	:	Drain Concrete
ple Type /Size	:	150X150X150 mm
ple grade/Age	:	M20 / 28 Days Compressive Strength
ference to BIS codes	:	IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5
te of test	:	16/07/2018

L o.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Concrete	M20	18/06/2018	16/07/2018	150.42 X 150.54 X 150.45	22644	8.312	538.9	23.8	23.5
2	Drain Concrete	M20	18/06/2018	16/07/2018	150.42 X 150.54 X 150.45	22644	8.331	518.6	22.9	
3	Drain Concrete	M20	18/06/2018	16/07/2018	150.32 X 150.54 X 150.35	22629	8.345	536.3	23.7	

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Certificate No.: TC- 5548

TEST REPORT OF CEMENT CONCRETE CUBES

Format No: CP/TF/01

Lab ID : **CP-2018-06-20-16**

Date: 25/06/2018

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.

Agency : Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.

Customer's Reference : BBMP/EE/BTP/WO/110/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 20-06-18

Sample ID No : 2018-06-20-16 /03

Customer ID : Drain Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 25/06/2018

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Concrete	M20	18/06/2018	25/06/2018	149.48 X 150.54 X 149.22	22503	8.165	405.0	18.0	17.6
2	Drain Concrete	M20	18/06/2018	25/06/2018	150.65 X 150.34 X 151.32	22649	8.252	389.6	17.2	
3	Drain Concrete	M20	18/06/2018	25/06/2018	151.88 X 150.15 X 150.11	22805	8.194	401.4	17.6	

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Certificate No.: TC- 5548

TEST REPORT OF CEMENT CONCRETE CUBES

Format No: CP/TF/01

Date: 16/07/2018

Lab ID	:	CP-2018-06-20-16
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.
Agency	:	Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.
Customer's Reference	:	BBMP/EE/BTP/WO/110/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	20-06-18
Sample ID No	:	2018-06-20-16 /04
Customer ID	:	Drain Concrete
Sample Type /Size	:	150X150X150 mm
Sample grade/Age	:	M20 / 28 Days Compressive Strength
Reference to BIS codes	:	IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5
Date of test	:	16/07/2018

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Concrete	M20	18/06/2018	16/07/2018	151.43 X 150.41 X 150.87	22777	8.176	494.3	21.7	21.9
2	Drain Concrete	M20	18/06/2018	16/07/2018	151.66 X 150.26 X 150.42	22788	8.114	505.9	22.2	
3	Drain Concrete	M20	18/06/2018	16/07/2018	150.26 X 150.18 X 150.27	22566	8.154	491.9	21.8	

Note:
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Authorised Signatory
Quality Manager

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Certificate No.: TC- 5548

Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Date: 25/06/2018

Lab ID	:	**CP-2018-06-20-16**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.
Agency	:	Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.
Customer's Reference	:	BBMP/EE/BTP/WO/110/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	20-06-18
Sample ID No	:	2018-06-20-16 /05
Customer ID	:	Drain Concrete
Sample Type /Size	:	150X150X150 mm
Sample grade/Age	:	M20 / 7 Days Compressive Strength
Reference to BIS codes	:	IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5
Date of test	:	25/06/2018

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Concrete	M20	18/06/2018	25/06/2018	151.47 X 149.33 X 151.94	22619	8.290	389.0	17.2	17.1
2	Drain Concrete	M20	18/06/2018	25/06/2018	151.52 X 151.80 X 151.57	23001	8.583	388.7	16.9	
3	Drain Concrete	M20	18/06/2018	25/06/2018	149.92 X 150.17 X 150.83	22513	8.084	389.5	17.3	

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Authorized Signatory
Quality Manager

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Certificate No.: TC- 5548

TEST REPORT OF CEMENT CONCRETE CUBES

Format No: CP/TF/01

Date: 16/07/2018

ab ID	:	CP-2018-06-20-16
stomer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
dress	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
oject Name	:	Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.
ency	:	Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.
stomer's Reference	:	BBMP/EE/BTP/WO/110/2017-18
rce of Sample	:	Sample supplied by Agency
ple Condition	:	Satisfactory
e of Receipt	:	20-06-18
ple ID No	:	2018-06-20-16 /06
tomer ID	:	Drain Concrete
ple Type /Size	:	150X150X150 mm
ple grade/Age	:	M20 / 28 Days Compressive Strength
erence to BIS codes	:	IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5
of test	:	16/07/2018

Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
Drain Concrete	M20	18/06/2018	16/07/2018	151.26 X 150.70 X 149.34	22795	8.519	560.0	24.6	23.9
Drain Concrete	M20	18/06/2018	16/07/2018	149.19 X 150.24 X 149.57	22414	8.145	531.2	23.7	
Drain Concrete	M20	18/06/2018	16/07/2018	150.28 X 150.79 X 149.95	22660	8.454	533.9	23.6	

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Certificate No.: TC- 5548

Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2018-06-20-16**

Date: 25/06/2018

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.

Agency : Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.

Customer's Reference : BBMP/EE/BTP/WO/110/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 20-06-18

Sample ID No : 2018-06-20-16 /07

Customer ID : Drain Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 25/06/2018

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Concrete	M20	18/06/2018	25/06/2018	149.65 X 149.03 X 150.12	22303	8.255	412.6	18.5	18.2
2	Drain Concrete	M20	18/06/2018	25/06/2018	150.53 X 150.65 X 151.20	22677	8.420	410.4	18.1	
3	Drain Concrete	M20	18/06/2018	25/06/2018	149.63 X 151.16 X 151.25	22617	8.239	404.9	17.9	

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TEST REPORT OF CEMENT CONCRETE CUBES

Format No: CP/TF/01

Lab ID	:	**CP-2018-06-20-16**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. **Date: 16/07/2018**
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.
Agency	:	Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.
Customer's Reference	:	BBMP/EE/BTP/WO/110/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	20-06-18
Sample ID No	:	2018-06-20-16 /08
Customer ID	:	Drain Concrete
Sample Type /Size	:	150X150X150 mm
Sample grade/Age	:	M20 / 28 Days Compressive Strength
Reference to BIS codes	:	IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5
Date of test	:	16/07/2018

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Concrete	M20	18/06/2018	16/07/2018	149.86 X 151.88 X 149.93	22760	8.117	559.3	24.6	24.0
2	Drain Concrete	M20	18/06/2018	16/07/2018	151.42 X 150.10 X 149.47	22728	8.183	543.2	23.9	
3	Drain Concrete	M20	18/06/2018	16/07/2018	151.51 X 149.70 X 151.26	22681	8.246	534.0	23.5	

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Quality Manager

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Certificate No.: TC- 5548

TEST REPORT OF AGGEGRATE IMPACT VALUE
IS: 2386 Part IV

Lab ID	:	**CP-RW-2018-06-25-01** **Date: 27-06-18**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub
Agency	:	Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.
Customer Reference	:	BBMP/EE/BTP/WO/110/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	25-06-18
Sample ID No	:	2018-06-25-01/01
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
Date of test	:	25-06-18

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	313.0	313.0
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	77.0	76.0
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	235.7	236.5
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.3	0.5
5	Aggregate impact value	(B/A)*100	24.6	24.3
6	Aggregate impact value (Mean of two tests)	Pecentage	24.4	

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Certificate No.: TC- 5548

DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2018-06-25-01** **Date: 27-06-18**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura)
Agency	:	Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.
Customer Reference	:	BBMP/EE/BTP/WO/110/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	25-06-18
Sample ID No	:	2018-06-25-01/01
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
Date of test	:	25-06-18

Result:

Index	Percentage of Flakiness and Elongation Index(%)	Secified limits as per MORTH specification table 400-12
Flakiness Index	18.1	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	18.4	
Combined Flakiness and Elongation Index for WMM	36.5	

Note:-

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Certificate No.: TC- 5548

PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID	:	**CP-RW-2018-07-03-01** **Date: 06-07-18**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.
Agency	:	Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.
Customer Reference	:	BBMP/EE/BTP/WO/110/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	03-07-18
Sample ID No	:	2018-07-03-01/01
Type of Mix	:	BC (Bituminous Concrete)
Date of test	:	03-07-18

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	14.0	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	10.1		
Strength	Aggregate Impact Value	21.6	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.89	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.44	Maximum 2%	IS:2386 Part III

Note:-

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Certificate No.: TC- 5548

PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR SEMI DENSE BITUMINOUS CONCRETE

Lab ID	:	**CP-RW-2018-07-09-01**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.
Agency	:	Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.
Customer Reference	:	BBMP/EE/BTP/WO/110/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	09-07-18
Sample ID No	:	2018-07-09-01/01
Type of Mix	:	SDBC (Semi Dense Bituminous Concrete)
Date of test	:	09-07-18

Date: 12-07-18

Physical Requirements fo Coarse Aggregate for Semi Dense Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	11.1	Combined Flakiness & Elongation Index for DBM is Maximum 35%	IS:2386 Part I
	Elongation Index	9.5		
Strength	Aggregate Impact Value	21.8	Maximum 30%	IS:2386 Part IV
Specific gravity	Specific gravity	2.58	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.31	Maximum 2%	IS:2386 Part III

Note:

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Quallity Manager

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TEST RESULTS OF GRADATION FOR WMM

Lab ID	:	CP-RW-2018-06-25-01 Date: 27-06-18
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.
Agency	:	Sri. Narasimharaju K., #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.
Customer Reference	:	BBMP/EE/ISTP/WO/110/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	25-06-18
Sample ID No	:	2018-06-25-01/01
Type of Mix	:	WMM (Wet Mix Macadam)
Date of test	:	25-06-18
Oven Dry Weight	:	11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	211	211	1.9	98.1	95-100
22.4	2145	2356	21.4	78.6	60-80
11.2	2377	4733	43.0	57.0	40-60
4.75	1997	6730	61.2	38.8	25-40
2.36	1796	8526	77.5	22.5	15-30
0.6	210	8736	79.4	20.6	8-22
0.075	1744	10480	95.3	4.7	0-5

Note:-
The results pertain to the samples received and tested.
All information furnished by Customer/Representative
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Authorized Signatory
Quality Manager

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2018-07-03-01** **Date: 05-07-18**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.
Agency	:	Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.
Customer Reference	:	BBMP/EE/BTP/WO/110/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	03-07-18
Sample ID No	:	2018-07-03-01/01
Type of Mix	:	BC-Plant (Bituminous Concrete)
Date of test	:	03-07-18
Oven Dry Weight	:	5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	450	450	9.0	91.0	90-100
9.5	350	800	16.0	84.0	70-88
4.75	950	1750	35.0	65.0	53-71
2.36	750	2500	50.0	50.0	42-58
1.18	350	2850	57.0	43.0	34-48
0.6	500	3350	67.0	33.0	26-38
0.3	300	3650	73.0	27.0	18-28
0.15	650	4300	86.0	14.0	12-20
0.075	250	4550	91.0	9.0	4-10
PAN	450	5000	100	0.0	0

Note:-
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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

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Page 1/1 *End of Report*

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TEST REPORT OF AGGREGATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	CP-RW-2018-07-03-01 Date: 06-07-18
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains from Thindlu circle to 2nd Cross Hullur Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.
Agency	:	Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagasheenahalli, Bangalore-560 094.
Customer Reference	:	BBMP/EE/BTP WO 110/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	03-07-18
Sample ID No	:	2018-07-03-01-01
Type of Mix	:	BC(Bituminous Concrete)
Date of test	:	03-07-18

Type of Binder	:	60/70
% of Binder Used	:	5.0%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	10.0 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Specified limits as per MORTH specification table 500.8
1	98.8	1.2	95.3	Minimum Retained Coating 95%
2	96.9	3.1		
3	96.1	3.9		

Note:
This results pertain to the samples received and tested
All information furnished by Customer Representative
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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TESTS RESULTS ON STABILITY OF MIX

Lab ID	:	**CP-RW-2018-07-03-01** **Date: 06-07-18**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.
Agency	:	Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.
Customer Reference	:	BBMP/EE/BTP/WO/110/2017-18
Source of Sample	:	Hot Mix Plant, Bangalore
Sample Condition	:	Satisfactory
Date of Receipt	:	03-07-18
Sample ID No	:	2018-07-03-01/01
Type of Mix	:	BC (Bituminous Concrete)
Date of test	:	03-07-18

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	12.02	12.59	10KN(min)
2	Marshal flow at 60°C, mm	4.31	4.14	2-4
3	Percent air Voids	5.56	3.34	3-5
4	Percent Voids in mineral Aggregate(VMA %)	15.93	13.26	13-15
5	Percent Voids filled with Bitumen(VFB %)	73.86	69.14	65-75
6	Density, g/cc	2.24	2.26	–

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TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : CP-RW-2018-07-12-01

Date: 13-07-18

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.

Agency : Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.

Customer Reference : BBMP/EE/BTP/WO/110/2017-18

Source of Sample : Sample supplied by Agency

Date of Receipt : 12-07-18

Sample ID No : 2018-07-12-01/01

Type of Mix : BC (Bituminous Concrete)

Date of test : 12-07-18

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	503	504
2	Weight of the sample After extraction	B	471	473
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	6.36	6.15
4	Average percentage	%	6.3	

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Lab ID : CP-RW-2018-07-12-01 Date: 13-07-18

Sample ID : 2018-07-12-01/01

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 471

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	42	42	9.0	91.0	90-100
9.5	66	108	23.0	77.0	70-88
4.75	28	137	29.0	71.0	53-71
2.36	66	203	43.0	57.0	42-58
1.18	80	283	60.0	40.0	34-48
0.6	38	320	68.0	32.0	26-38
0.3	22	342	72.7	27.3	18-28
0.15	38	380	80.7	19.3	12-20
0.075	71	451	95.7	4.3	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 473

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	47	47	10.0	90.0	90-100
9.5	71	118	24.9	75.1	70-88
4.75	61	179	37.8	62.2	53-71
2.36	66	245	51.8	48.2	42-58
1.18	14	259	54.8	45.2	34-48
0.6	42	301	63.7	36.3	26-38
0.3	47	349	73.7	26.3	18-28
0.15	66	414	87.6	12.4	12-20
0.075	19	433	91.6	8.4	4-10

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ಯಲಹಂಕ ವಲಯ.
ಬಿ. ಬಿಂ. ಮ. ಪಾ., ಬೆಂಗಳೂರು-೫

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TEST RESULTS OF GRADATION FOR SDBC
IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	CP-RW-2018-07-09-01 Date: 11-07-18
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.
Agency	:	Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.
Customer Reference	:	BBMP/EE/BTP/WO/110/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	09-07-18
Sample ID No	:	2018-07-09-01/01
Type of Mix	:	SDBC-Plant (Semi Dense Bituminous Concrete)
Date of test	:	09-07-18
Weight of Sample	:	5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-15(grading-2)
13.2	0	0	0.0	100.0	100
9.5	410	410	8.2	91.8	90-100
4.75	2187	2597	51.9	48.1	35-51
2.36	1038	3635	72.7	27.3	24-39
1.18	525	4160	83.2	16.8	15-30
0.3	299	4459	89.2	10.8	9-19
0.075	269	4728	94.6	5.4	3-8
PAN	272	5000	100.0	0.0	0

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Quality Manager

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	**CP-RW-2018-07-09-01** **Date: 12-07-18**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.
Agency	:	Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.
Customer Reference	:	BBMP/EE/BTP/WO/110/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	09-07-18
Sample ID No	:	2018-07-09-01/01
Type of Mix	:	SDBC (Semi Dense Bituminous Concrete)
Date of test	:	09-07-18

Type of Binder	:	60/70
% of Binder Used	:	5.0%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	10.0 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	99.0	1.0	98.8	Minimum Retained Coating 95%
2	98.5	1.5		
3	99.0	1.0		

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TESTS RESULTS ON STABILITY OF MIX

Lab ID	:	CP-RW-2018-07-09-01 **Date: 12-07-18**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.
Agency	:	Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.
Customer Reference	:	BBMP/EE/BTP/WO/110/2017-18
Source of Sample	:	Hot Mix Plant, Bangalore
Sample Condition	:	Satisfactory
Date of Receipt	:	09-07-18
Sample ID No	:	2018-07-09-01/01
Type of Mix	:	SDBC (Semi Dense Bituminous Concrete)
Date of test	:	09-07-18

The results of the tests conducted on the Semi Dense Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-16
1	Marshal Stability at 60°C, KN	10.54	10.11	8.2KN(min)
2	Marshal flow at 60°C, mm	3.22	3.29	2-4
3	Percent air Voids	4.59	4.25	3-5
4	Percent Voids in mineral Aggregate(VMA %)	13.88	13.94	13-15
5	Percent Voids filled with Bitumen(VFB %)	70.32	70.0	65-75
6	Density, g/cc	2.26	2.24	–

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TEST RESULTS OF GRADATION FOR SDBC
(IS 2386:(Part 1) 1963 (RA2011)

Lab ID	:	**CP-RW-2018-07-16-01**	**Date: 17-07-18**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.	
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.	
Project Name	:	Improvements to roads and drains from Thindlu circle to 2nd Cross Bullet Krishnappa layout in ward No.09 (Vidyaranyapura) Vidyaranyapura Sub Division.	
Agency	:	Sri. Narasimharaju K, #175, 5th Cross, Maruthinagara Bhadrappa Layout, Nagashettahalli, Bangalore-560 094.	
Customer Reference	:	BBMP/EE/BTP/WO/110/2017-18	
Source of Sample	:	Sample supplied by Agency	
Sample Condition	:	Satisfactory	
Date of Receipt	:	16-07-18	
Sample ID No	:	2018-07-16-01/01	
Type of Mix	:	SDBC (Semi Dense Bituminous Concrete)	
Date of test	:	16-07-18	

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	500
2	Weight of the sample After extraction	B	473	474
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	5.40	5.20
4	Average percentage	%	5.3	

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Lab ID : CP-RW-2018-07-16-01

Sample ID No : 2018-07-16-01/01

Date: 17-07-18

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 473

IS Sieve Size(mm)	Weight Retained(gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-15(grading-2)
13.2	0	0	0	100.0	100
9.5	31	31	6.55	93.4	90-100
4.75	213	244	51.59	48.4	35-51
2.36	63	307	64.90	35.1	24-39
1.18	39	346	73.15	26.8	15-30
0.3	71	417	88.16	11.8	9-19
0.075	34	451	95.35	4.7	3-8
PAN	22	473	100.00	0.0	0

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 474

IS Sieve Size(mm)	Weight Retained(gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-15(grading-2)
13.2	0	0	0	100.0	100
9.5	29	29	6.12	93.9	90-100
4.75	215	244	51.48	48.5	35-51
2.36	62	306	64.56	35.4	24-39
1.18	41	347	73.21	26.8	15-30
0.3	66	413	87.13	12.9	9-19
0.075	32	445	93.88	6.1	3-8
PAN	29	474	100.00	0.0	0

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